

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

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p2  
1. (currently amended) High-purity standard  
particle ~~partieles~~ production apparatus comprising a particle  
~~partieles~~ generation chamber to generate high-purity particles  
by laser ablation in an ambient gas,  
           a particle ~~partieles~~ classification chamber to  
classify high-purity standard particles of a diameter as  
required from said high-purity particles as generated at said  
generation chamber, [[and]]  
           a particle ~~partieles~~ collecting chamber to collect  
said high-purity standard particles as classified at said  
classification chamber; and  
           a particle heating means positioned between said  
particle classification chamber and said particle collecting  
chamber;  
           wherein said particle heating means is adapted to  
heat the high-purity standard particles classified at said  
particle classification chamber by infrared radiation at a  
downstream position from said particle classification chamber,  
to make spherical the high-purity standard particles having

various shapes through cohesion, and to improve the  
crystallization of the high-purity standard particles.

P2  
2. (currently amended) ~~High-purity~~ The high-purity  
standard particle ~~partieles~~-production apparatus according to  
~~claim 1~~ claim 8 wherein a plurality of particle ~~partieles~~  
classification means are disposed in said particle ~~partieles~~  
classification chamber.

3. (canceled)

4. (currently amended) The high-purity ~~High-purity~~  
standard ~~partieles~~ particle-production apparatus according to  
claim 1 wherein a gas refining means is provided to  
substantially remove impurities contained in a raw material  
gas supplied as said ambient gas.

5. (currently amended) The high-purity ~~High-purity~~  
standard particle ~~partieles~~-production apparatus according to  
claim 1 wherein an orifice is provided in said particle  
~~partieles~~-collecting chamber to reduce a piping cross section  
through a passage course of said high-purity standard  
particles.

6. (canceled)

7. (new) The high-purity standard particle  
production apparatus according to claim 1, comprising

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a particle inflow pipe means connected between the particle generation chamber and the particle classification chamber for inducing a flow of the high-purity standard particles generated at said particle generation chamber to said particle classification chamber;

wherein the particle inflow pipe means has an equidistantly separated construction.

8. (new) The high-purity standard particle production apparatus according to claim 7, wherein the particle inflow pipe means extends from the particle generation chamber towards the particle classification chamber, and is equidistantly separated from every 90 degree into four divisions.

9. (new) A method of producing high-purity standard particles in an apparatus connecting a particle generation chamber to generate high-purity particles, a particle classification chamber to classify the high-purity particles generated at the particle generation chamber; and a particle collecting chamber to collect said high-purity standard particles as classified at said particle classification chamber in that order, comprising:

introducing a carrier gas of a low concentration of impurities into the particle generation chamber;

introducing a sheath gas into the particle classification chamber;

performing differential exhaustion of a gas exhaustion system of the particle collecting chamber and exhaustion of the gas exhaustion system of the particle classification chamber by controlling the exhausting actions such that the inside of the high-purity particle generation chamber is kept to a constant pressure;

introducing a pulse laser beam into the particle generation chamber and radiating the pulse laser beam to a target, and thus obtaining the high-purity particles;

introducing the high-purity particles into the particle classification chamber and classifying the particles into a substantially sole predetermined diameter to obtain the high-purity standard particles;

introducing the high-purity standard particles as classified in the particle classification chamber into the particles collecting chamber and collecting the high-purity standard particles;

wherein said classifying in the particle classification chamber is performed under conditions wherein the mass inflow rate of the carrier gas and sheath gas to be introduced into the particle classification chamber and mass outflow rate thereof are controlled such that those rates become equal.

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10. (new) The method of producing high-purity standard particles according to claim 9, further comprising electrically charging the high-purity particles generated at the particles generation chamber, and further classifying the charged high-purity particles by a differential electric mobility analyzer.

11. (new) The method of producing high-purity standard particles according to claim 9, wherein the action of introducing carrier gas of a low concentration of impurities into the particles generation chamber and the action of differential exhaustion of gas exhaustion system of the particle collecting chamber are parallelly performed in the radiation of the pulse laser beam to a target.

12. (new) The method of producing high-purity standard particles according to claim 9, wherein in the collecting of the high-purity standard particles, the high-purity standard particles are carried through a nozzle into the particles collecting chamber, and collected by utilizing a difference between internal and outside pressures of the nozzle to improve the efficiency of collecting the high-purity standard particles into a substrate by virtue of inertial force inherent in the high-purity standard particles.

13. (new) The method of producing high-purity standard particles according to claim 12, wherein in the process of collecting the high-purity standard particles, a bias voltage is applied onto the substrate.

14. (new) The method of producing high-purity standard particles according to claim 13, wherein in the process of collecting the high-purity standard particles, the substrate onto which a bias voltage is applied is refrigerated.

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